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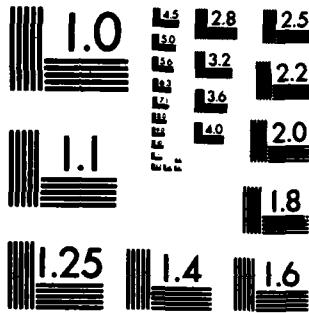
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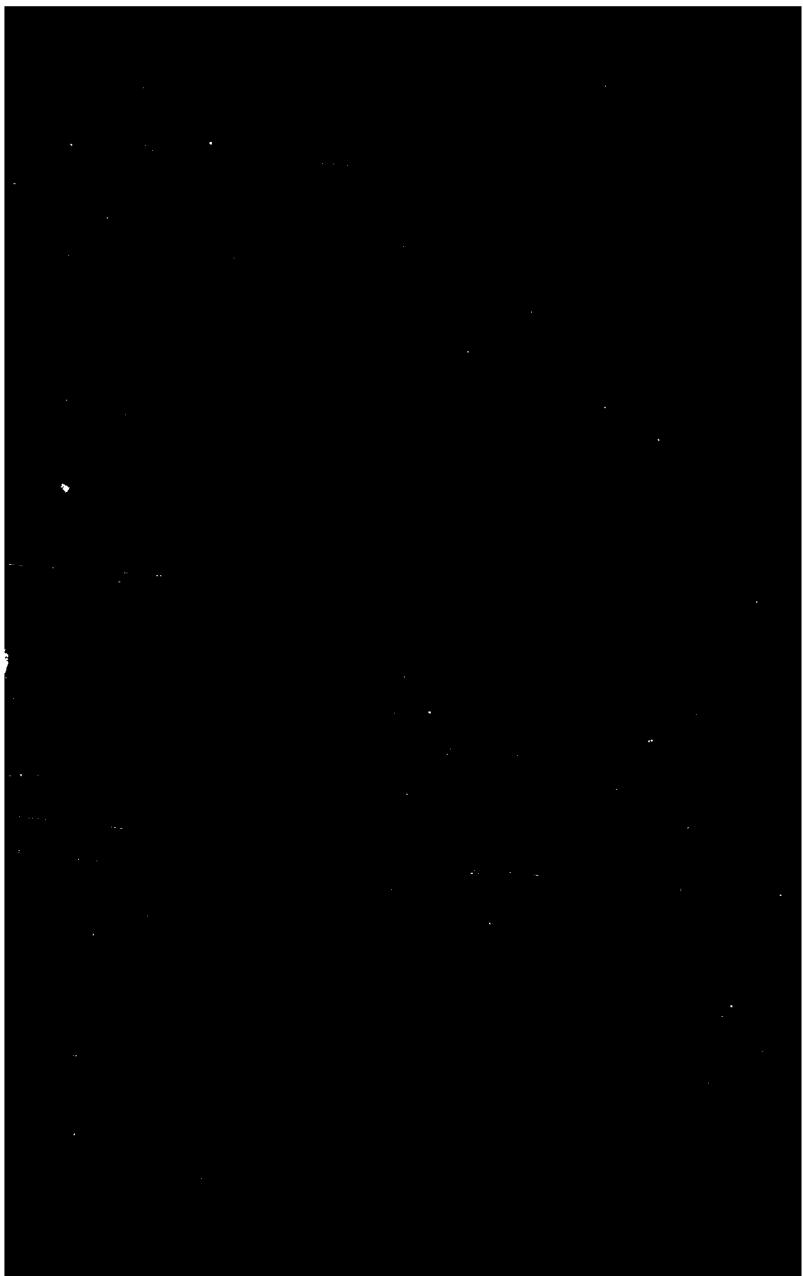
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The tables required to calculate 8-12 μm atmospheric transmission at 4 km range for use in determining maximum lock-on range (MLOR) and maximum acquisition range (AR) from the Manual Version of the FTDA are presented. Tables adapted from AFGL models for calculating molecular, aerosol, and precipitation extinction coefficients as functions of various meteorological parameters are presented. An aerosol model selection procedure is provided as well as a table which converts total extinction coefficient to atmospheric transmission.		

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1. A Brief Description of the Aerosol Selection Process

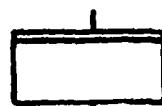
The methodology is based on the properties of three non-fog aerosol models in LOWTRAN. The Rural Model describes the basic background aerosol contained in all airmasses. The Maritime Model describes the aerosol that exists in airmasses with a maritime history when the marine aerosol (mostly sea salt) is superimposed in significant concentrations on the background aerosol. The Urban Model describes aerosol properties when certain types of urban pollutants are superimposed on the background aerosol. Under certain conditions, a maritime aerosol may also contain the urban component. In this case, since the maritime aerosol produces the strongest 8-12 μm extinction of the above three aerosol conditions, the Maritime Model takes precedence over the Urban Model.

This algorithm quantifies the aerosol model selection on the basis of the history of the airmass expected over the target. The algorithm is based on a large body of published scientific literature on atmospheric aerosols; however, certain selection criteria (e.g., the overwater distance for transformation of the continental aerosol into maritime characteristics) are based on very limited quantities of observational data. Experience by users and publication of additional scientific data will undoubtedly lead to modification of at least some of these criteria.

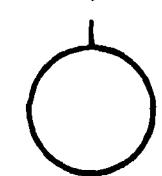
In using the flow charts in Fig. A-1, the basic rule is to always move downward in each figure. The following are key symbols to aid in interpretation of the charts:



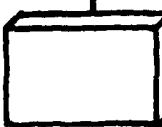
represents the input of data



represents the entry into one of several alternate paths through the diagram



represents a connecting point to some other part of the diagram



represents selection of a particular "dry aerosol" model

Figure A-1A

- a. Separates airmass by origin.
- b. Treats the possible transformation of airmasses with a continental origin so that their aerosol assumes the extinction properties of a maritime aerosol.

Figure A-1B treats mechanisms for removal of the sea-salt aerosol from maritime airmasses, namely, sedimentation and washout. When these processes are effective, the aerosol tends to return to rural-like properties.

Figures A-1C and A-1D treat the problem of determining when the urban model should be used to describe a polluted rural aerosol.

Fig. A-1A

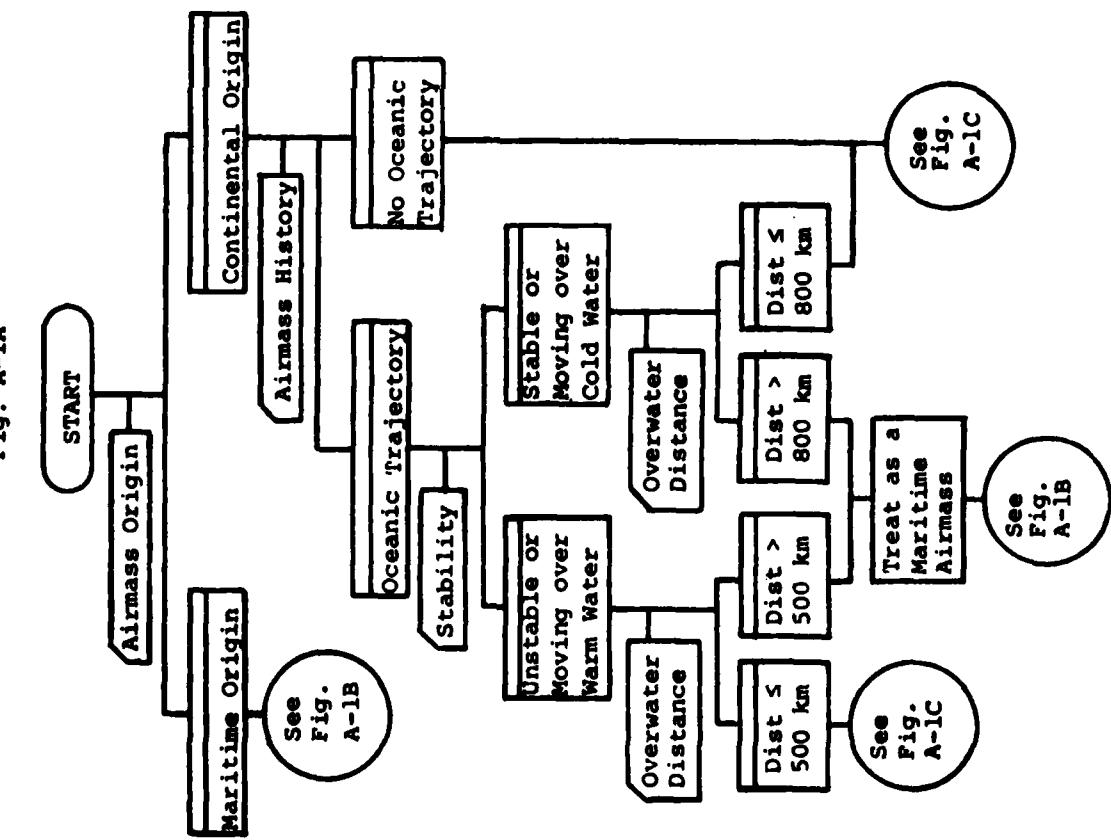


Fig. A-1B

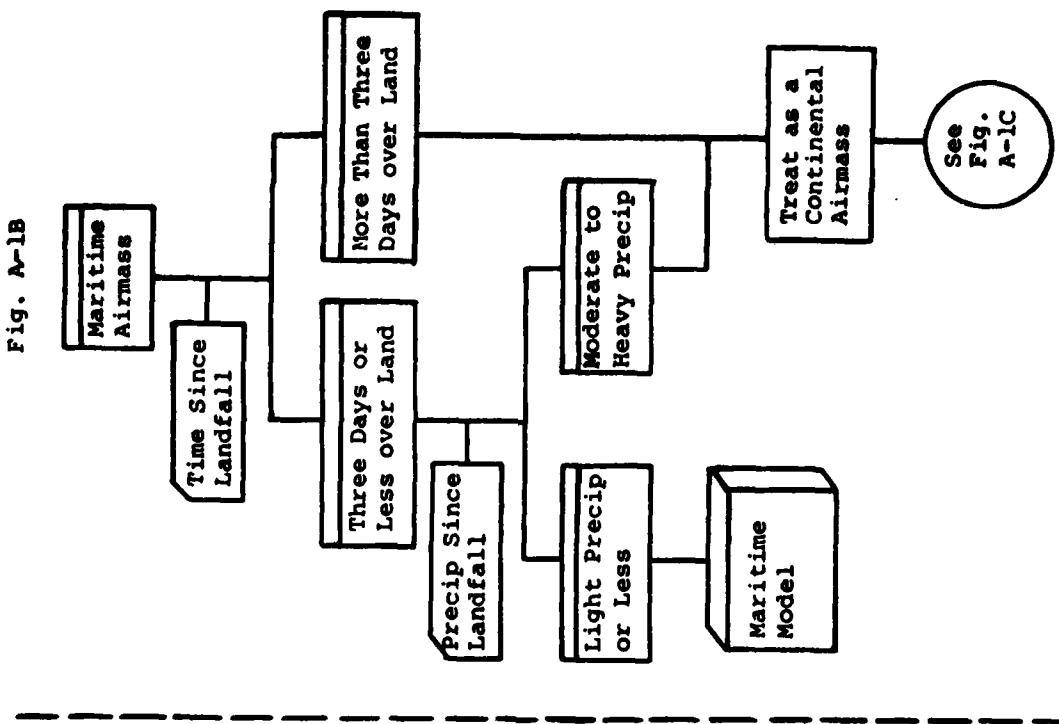


Fig. A-1. The Aerosol Model Selection Process

Fig. A-1C

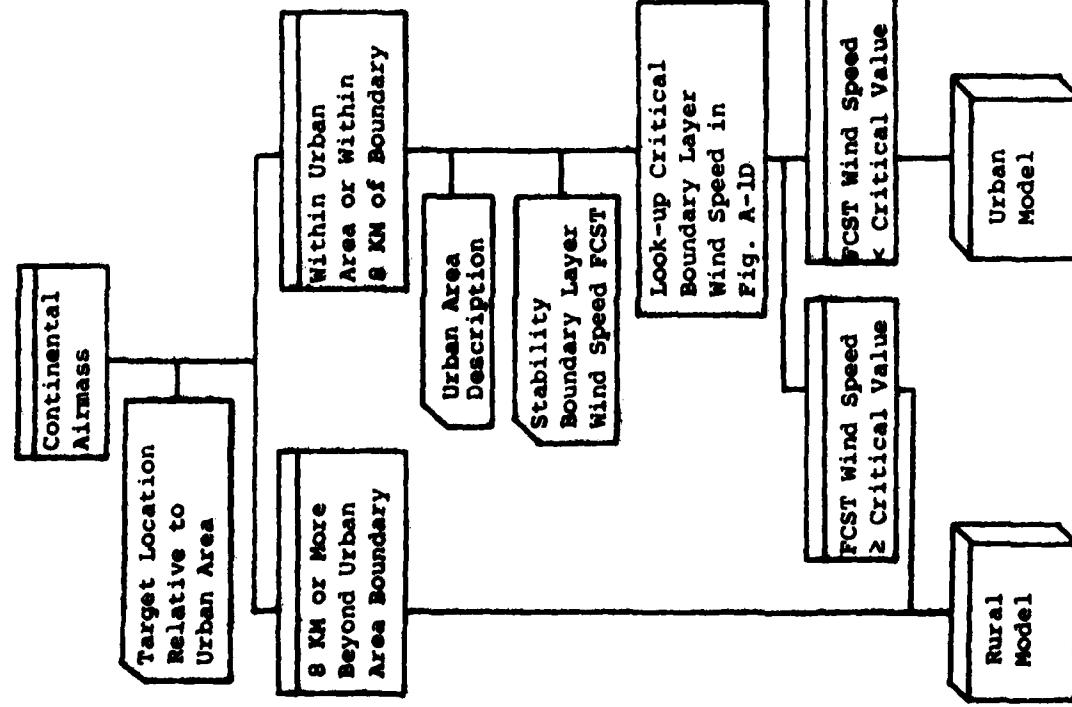


Fig. A-1D

Stability Condition	Critical Wind Speed (Knots)
Large and Heavily Industrialized Urban Areas (Area $> 2000 \text{ km}^2$)	Small - Medium Urban Areas or Large Areas Without Heavy Industrialization
Unstable	4
Neutral	8
Stable	25
	15

Definitions of Stability:

- 1) Unstable: Lapse rate near dry adiabatic in lowest 1.5-2.0 KM enhances vertical diffusion.
- 2) Neutral: Lapse rate near the pseudo-adiabatic lapse rate or slightly more stable in the lowest 1.5-2.0 KM, with perhaps a weak inversion in the lowest 2 KM.
- 3) Stable: A strong inversion below 2 KM inhibits turbulent vertical diffusion.

Fig. A-1D. Approximate values of critical boundary layer wind speed (knots) for use of the urban aerosol model. Wind speed is tabulated against the size of the urban area and the stability condition. Definitions of stability categories are given above.

Fig. A-1 (Continued)

SNOW INTENSITY	VISIBILITY (KM)	EXTINCTION COEFFICIENT
HEAVY	.2	24.450
	.4	12.225
MODERATE	.6	8.150
	.8	6.113
	1.0	4.890
	1.5	3.260
	2.0	2.445
	2.5	1.956
	3.0	1.630
	4.0	1.223
LIGHT	5.0	.978
	6.0	.815
	7.0	.699
	8.0	.611
	9.0	.543
	10.0	.489
	15.0	.326
	20.0	.245

TABLE A-1A. PRECIPITATION EXTINCTION COEFFICIENT (B_p)
SNOW MODEL

RAIN INTENSITY	RAINFALL RATE (IN/HR)	EXTINCTION COEFFICIENT
LIGHT		
	.01	.154
	.05	.424
	.10	.657
	.15	.848
MODERATE		
	.20	1.016
	.25	1.170
	.30	1.312
	.35	1.446
	.40	1.573
	.45	1.694
	.50	1.810
	.55	1.922
HEAVY		
	.60	2.030
	.65	2.135
	.70	2.237
	.75	2.337
	.80	2.434
	.85	2.529
	.90	2.621
	.95	2.712
	1.00	2.801

RAIN MODEL

TABLE A-1B. PRECIPITATION EXTINCTION COEFFICIENT (B_p)

TABLE A-2. RELATIVE HUMIDITY (RH)

DEW POINT	TEMPERATURE (°)										-1 -2 -3 -4 -5 -6 -7 -8 -9 -10 -11 -12 -13 -14 -15 -16 -17 -18 -19 -20
	2	2	2	2	2	2	2	2	2	2	
-45	9	8	8	8	8	8	8	8	8	8	2
-44	10	9	9	9	9	9	9	9	9	9	2
-43	11	10	11	11	10	10	10	10	10	10	2
-42	12	11	12	11	12	11	10	11	10	10	2
-41	14	13	12	11	12	11	10	11	10	10	2
-40	15	14	13	12	13	12	11	10	10	10	2
-39	17	15	14	13	14	13	12	11	10	10	2
-38	18	17	16	15	16	15	14	13	12	11	2
-37	20	19	17	16	15	14	13	12	11	10	2
-36	23	21	19	18	16	15	14	13	12	11	2
-35	25	23	21	20	18	17	15	14	13	12	2
-34	28	26	24	22	20	18	17	16	15	14	2
-33	30	28	26	24	22	20	19	17	16	15	2
-32	31	28	26	24	22	20	19	17	16	15	2
-31	34	31	29	26	24	22	21	19	18	17	2
-30	37	34	31	29	27	24	23	21	19	18	2
-29	41	38	34	32	29	27	25	23	21	20	2
-28	45	41	38	35	32	30	27	25	23	21	2
-27	49	45	41	38	35	32	30	28	26	24	2
-26	54	50	46	42	39	35	33	30	28	26	2
-25	64	59	54	50	46	42	39	36	33	31	2
-24	70	65	59	55	50	46	42	39	36	34	2
-23	77	71	65	60	55	50	46	43	39	36	2
-22	84	77	71	65	60	55	51	47	43	40	2
-21	92	84	77	71	66	60	55	51	47	43	2
-20	100	92	84	78	71	66	61	56	52	48	2
-19	100	92	84	78	71	66	61	56	52	48	2
-18	100	92	85	78	72	66	61	56	52	48	2
-17	100	92	85	78	72	66	61	56	52	48	2
-16	100	92	85	78	72	66	61	57	52	49	2
-15	100	92	85	78	72	66	61	57	52	49	2
-14	100	92	85	78	72	66	61	57	52	49	2
-13	100	92	85	78	72	66	61	57	52	49	2
-12	100	92	85	78	72	66	61	57	52	49	2
-11	100	92	85	78	72	66	61	57	52	49	2
-10	100	92	85	78	72	66	61	57	52	49	2
-9	100	92	85	78	72	66	61	57	52	49	2
-8	100	92	85	78	72	66	61	57	52	49	2
-7	100	92	85	78	72	66	61	57	52	49	2
-6	100	92	85	78	72	66	61	57	52	49	2
-5	100	92	85	78	72	66	61	57	52	49	2
-4	100	92	85	78	72	66	61	57	52	49	2
-3	100	92	85	78	72	66	61	57	52	49	2
-2	100	92	85	78	72	66	61	57	52	49	2
-1	100	92	85	78	72	66	61	57	52	49	2

TABLE A-2. RELATIVE HUMIDITY (RH)

DEW POINT	TEMPERATURE (C)										RELATIVE HUMIDITY (RH)									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
-25	13	12	11	10	9	8	7	7	7	7	7	6	6	6	6	6	6	6	6	6
-24	14	13	12	11	10	9	8	8	8	8	8	7	7	7	7	7	7	7	7	7
-23	16	15	14	13	12	11	10	10	10	10	10	9	9	9	9	9	9	9	9	9
-22	17	16	15	14	13	12	11	11	11	11	11	10	10	10	10	10	10	10	10	10
-21	19	17	16	15	14	13	12	12	11	11	11	10	10	10	10	10	10	10	10	10
-20	20	19	18	16	15	14	13	12	12	11	11	10	10	10	10	10	10	10	10	10
-19	22	21	19	18	17	16	15	14	13	12	11	10	10	10	10	10	10	10	10	10
-18	24	23	21	20	18	17	16	15	14	13	12	11	11	11	10	10	10	10	10	10
-17	26	25	23	21	20	18	17	16	15	14	13	12	11	11	10	10	10	10	10	10
-16	29	27	25	23	22	20	19	17	16	15	14	13	12	11	10	10	10	10	10	10
-15	31	29	27	25	23	22	20	19	18	17	16	15	14	13	12	11	11	10	10	10
-14	34	31	29	27	25	24	22	21	19	18	17	16	15	14	13	12	11	11	10	10
-13	37	34	32	30	28	26	24	23	21	20	18	17	16	15	14	13	12	12	11	11
-12	40	37	34	32	30	28	26	24	23	21	20	19	17	16	15	14	13	13	12	12
-11	43	40	37	35	32	30	28	26	24	23	21	20	19	18	17	16	15	15	14	13
-10	47	43	40	38	35	33	30	28	27	25	23	22	20	19	18	17	16	15	15	14
-9	51	47	44	41	38	35	33	31	29	27	25	23	22	21	19	18	17	16	15	15
-8	55	51	47	44	41	38	36	33	31	29	27	25	24	22	21	20	19	18	17	16
-7	59	55	51	48	44	41	39	36	34	31	29	27	26	24	22	21	20	19	17	16
-6	64	59	55	51	48	45	42	39	36	34	32	30	28	26	24	23	21	20	19	17
-5	69	64	60	55	52	48	45	42	39	36	34	32	30	28	26	25	23	22	20	19
-4	74	69	64	60	56	52	48	45	42	39	37	34	32	30	28	27	25	23	22	20
-3	80	74	69	65	60	56	52	49	45	42	40	37	35	33	31	29	27	25	24	22
-2	86	80	75	69	65	60	56	52	49	46	43	40	38	35	33	31	29	27	25	23
-1	93	86	80	75	70	65	61	56	53	49	46	43	40	38	35	33	31	29	27	25
0	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	36	34	32	30	28
1	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	36	34	32	30	28
2	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	36	34	32	30	28
3	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
4	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
5	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
6	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
7	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
8	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
9	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
10	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
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12	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
13	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
14	100	93	87	81	75	70	65	61	57	53	50	47	44	41	39	36	34	32	30	28
15	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
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17	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
18	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27
19	100	93	87	81	75	70	65	61	57	53	50	47	44	41	38	35	33	31	29	27

TABLE A-2. RELATIVE HUMIDITY (RH)

DEN POINT	TEMPERATURE (°C)										RELATIVE HUMIDITY (RH)									
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
-5	11	11	10	10	9	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7
-7	12	12	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-9	13	13	12	11	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-11	14	14	13	12	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10
-13	15	15	14	14	14	13	12	11	11	11	11	11	11	11	11	11	11	11	11	11
-15	16	16	15	15	15	15	14	13	12	12	12	12	12	12	12	12	12	12	12	12
-17	17	17	16	16	15	15	15	14	13	12	12	12	12	12	12	12	12	12	12	12
-19	18	18	17	17	16	16	15	15	14	13	12	12	12	12	12	12	12	12	12	12
-21	19	19	18	18	17	17	16	15	15	14	13	12	12	12	12	12	12	12	12	12
-23	20	20	19	19	18	17	16	15	15	14	13	12	12	12	12	12	12	12	12	12
-25	21	21	20	20	19	18	17	16	15	14	13	12	12	12	12	12	12	12	12	12
-27	22	22	21	21	20	19	18	17	16	15	14	13	12	12	12	12	12	12	12	12
-29	23	23	22	22	20	19	18	17	16	15	14	13	12	12	12	12	12	12	12	12
-31	24	24	23	22	20	19	18	17	16	15	14	13	12	12	12	12	12	12	12	12
-33	25	25	23	22	20	19	18	17	16	15	14	13	12	12	12	12	12	12	12	12
-35	26	26	25	23	22	21	19	18	17	16	15	14	13	12	12	12	12	12	12	12
-37	27	27	25	24	22	21	20	19	18	17	16	15	14	13	12	12	12	12	12	12
-39	28	28	26	25	23	22	21	20	19	18	17	16	15	14	13	12	12	12	12	12
-41	29	29	27	25	23	22	21	20	19	18	17	16	15	14	13	12	12	12	12	12
-43	30	30	28	26	24	22	21	20	19	18	17	16	15	14	13	12	12	12	12	12
-45	31	31	29	27	25	23	22	21	20	19	18	17	16	15	14	13	12	12	12	12
-47	32	32	30	28	26	24	22	21	20	19	18	17	16	15	14	13	12	12	12	12
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-57	37	37	35	33	31	29	27	25	24	23	22	21	20	19	18	17	16	15	14	13
-59	38	38	36	34	32	30	28	26	25	24	23	22	21	20	19	18	17	16	15	14
-61	39	39	37	35	33	31	29	27	25	24	23	22	21	20	19	18	17	16	15	14
-63	40	40	38	36	34	32	30	28	26	25	24	23	22	21	20	19	18	17	16	15
-65	41	41	39	37	35	33	31	29	27	25	24	23	22	21	20	19	18	17	16	15
-67	42	42	40	38	36	34	32	30	28	26	25	24	23	22	21	20	19	18	17	16
-69	43	43	41	39	37	35	33	31	29	27	25	24	23	22	21	20	19	18	17	16
-71	44	44	42	40	38	36	34	32	30	28	26	25	24	23	22	21	20	19	18	17
-73	45	45	43	41	39	37	35	33	31	29	27	25	24	23	22	21	20	19	18	17
-75	46	46	44	42	40	38	36	34	32	30	28	26	25	24	23	22	21	20	19	18
-77	47	47	45	43	41	39	37	35	33	31	29	27	25	24	23	22	21	20	19	18
-79	48	48	46	44	42	40	38	36	34	32	30	28	26	25	24	23	22	21	20	19
-81	49	49	47	45	43	41	39	37	35	33	31	29	27	25	24	23	22	21	20	19
-83	50	50	48	46	44	42	40	38	36	34	32	30	28	26	25	24	23	22	21	20
-85	51	51	49	47	45	43	41	39	37	35	33	31	29	27	25	24	23	22	21	20
-87	52	52	50	48	46	44	42	40	38	36	34	32	30	28	26	25	24	23	22	21
-89	53	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	24	23	22	21
-91	54	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26	25	24	23	22
-93	55	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	24	23	22
-95	56	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26	25	24	23
-97	57	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	24	23
-99	58	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26	25	24
-101	59	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	24
-103	60	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26	25
-105	61	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25
-107	62	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26
-109	63	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27
-111	64	64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28
-113	65	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29
-115	66	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30
-117	67	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31
-119	68	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32
-121	69	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33
-123	70	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34
-125	71	71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35
-127	72	72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38	36
-129	73	73	71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37
-131	74	74	72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38
-133	75	75	73	71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39
-135	76	76	74	72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40
-137	77	77	75	73	71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41
-139	78	78	76	74	72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42
-141	79	79	77	75	73	71	69	67	65	63	61	59	57	55	53	51	49	47	45	43
-143	80	80	78	76	74	72	70	68	66	64	62	60	58	56	54					

TABLE A-3A. AEROSOL EXTINCTION COEFFICIENT (B_{AER})
MARITIME MODEL

VSBY (KM)	RELATIVE HUMIDITY										=>99				
	85	86	87	88	89	90	91	92	93	94	95	96	97	98	
1.5	.556	.566	.578	.591	.605	.621	.639	.660	.685	.714	.751	.797	.862	.961	1.159
2.0	.420	.428	.437	.447	.458	.470	.484	.500	.519	.541	.569	.605	.655	.731	.983
2.5	.338	.345	.352	.360	.368	.378	.390	.403	.418	.436	.458	.488	.527	.590	.713
3.0	.282	.288	.294	.301	.308	.316	.326	.336	.349	.364	.383	.408	.442	.494	.598
4.0	.212	.216	.221	.226	.232	.238	.245	.253	.263	.274	.289	.307	.333	.372	.451
5.0	.170	.173	.177	.181	.185	.191	.196	.203	.211	.220	.231	.246	.267	.299	.362
6.0	.141	.144	.147	.151	.154	.159	.163	.169	.175	.183	.193	.205	.222	.249	.302
7.0	.121	.123	.126	.129	.132	.136	.140	.145	.150	.157	.165	.176	.190	.213	.259
8.0	.106	.108	.110	.113	.115	.119	.122	.126	.131	.137	.144	.153	.166	.186	.226
9.0	.094	.096	.098	.100	.102	.105	.108	.112	.116	.121	.128	.136	.148	.165	.201
10.0	.084	.086	.088	.090	.092	.094	.097	.101	.104	.109	.115	.122	.133	.148	.180
15.0	.048	.049	.050	.051	.052	.053	.055	.057	.059	.062	.065	.069	.075	.084	.102
20.0	.029	.030	.031	.031	.032	.033	.034	.035	.036	.038	.040	.043	.046	.052	.063
30.0	.017	.017	.017	.018	.018	.019	.019	.020	.021	.021	.023	.024	.026	.029	.036
40.0	.012	.012	.013	.013	.013	.013	.014	.014	.015	.016	.016	.017	.019	.021	.026
50.0	.009	.009	.010	.010	.010	.010	.011	.011	.011	.012	.013	.013	.015	.016	.020

RELATIVE HUMIDITY		55	60	65	70	72	74	76	78	80	81	82	83	84		
VSBY (km)	<=10	30	50	.314	.320	.326	.333	.359	.368	.423	.464	.513	.520	.528	.537	.546
1.5	.286	.296	.310	.314	.320	.326	.333	.359	.368	.423	.464	.513	.520	.528	.537	.546
2.0	.216	.223	.234	.238	.242	.246	.252	.271	.293	.319	.351	.368	.394	.399	.416	.413
2.5	.173	.179	.188	.191	.194	.198	.202	.217	.235	.257	.282	.312	.316	.321	.326	.332
3.0	.145	.150	.157	.159	.162	.165	.169	.182	.197	.214	.235	.260	.264	.268	.273	.277
4.0	.109	.113	.118	.120	.122	.124	.127	.136	.148	.161	.177	.196	.199	.202	.205	.208
5.0	.087	.090	.094	.096	.097	.099	.101	.109	.118	.129	.141	.157	.159	.161	.164	.167
6.0	.073	.075	.079	.080	.081	.083	.084	.091	.096	.107	.110	.130	.132	.134	.137	.139
7.0	.062	.064	.067	.068	.069	.071	.072	.078	.084	.092	.101	.112	.113	.115	.117	.119
8.0	.054	.056	.059	.059	.060	.062	.063	.068	.073	.080	.088	.097	.099	.100	.102	.104
9.0	.049	.050	.052	.053	.054	.055	.056	.060	.065	.071	.078	.086	.088	.089	.091	.092
10.0	.043	.045	.047	.047	.048	.049	.050	.054	.058	.064	.070	.078	.079	.080	.081	.083
15.0	.024	.025	.026	.027	.027	.028	.028	.031	.033	.036	.040	.044	.045	.046	.047	.048
20.0	.015	.016	.016	.016	.017	.017	.017	.019	.020	.022	.024	.027	.027	.028	.028	.028
30.0	.008	.009	.009	.009	.009	.010	.010	.011	.011	.013	.014	.015	.015	.016	.016	.016
40.0	.006	.006	.007	.007	.007	.007	.007	.008	.008	.009	.010	.011	.011	.011	.012	.012
50.0	.005	.005	.005	.005	.005	.005	.005	.006	.006	.007	.008	.008	.009	.009	.009	.009

TABLE A-3A. AEROSOL EXTINCTION COEFFICIENT (B_{AER})
MARITIME MODEL

VSBV (KM)	RELATIVE HUMIDITY									>99			
	<=50	55	60	65	70	75	80	85	90				
1.5	.260	.260	.260	.260	.251	.240	.243	.247	.249	.253	.257	.264	.272
2.0	.195	.195	.195	.195	.195	.188	.180	.182	.185	.187	.189	.193	.195
2.5	.156	.156	.156	.156	.156	.151	.144	.146	.148	.150	.151	.154	.159
3.0	.130	.130	.130	.130	.130	.125	.120	.121	.123	.125	.126	.128	.132
4.0	.097	.098	.098	.098	.098	.094	.090	.091	.092	.093	.094	.096	.099
5.0	.078	.078	.078	.078	.078	.075	.072	.073	.074	.074	.075	.077	.079
6.0	.065	.065	.065	.065	.065	.062	.060	.060	.061	.062	.063	.064	.066
7.0	.055	.055	.055	.055	.055	.053	.051	.052	.052	.053	.054	.054	.056
8.0	.048	.048	.048	.048	.048	.047	.044	.045	.046	.046	.047	.047	.049
9.0	.043	.043	.043	.043	.043	.041	.039	.040	.041	.041	.041	.042	.043
10.0	.038	.038	.038	.038	.038	.037	.035	.036	.036	.037	.037	.038	.039
15.0	.022	.022	.022	.022	.022	.021	.020	.020	.021	.021	.021	.022	.023
20.0	.013	.013	.013	.013	.013	.013	.013	.012	.013	.013	.013	.013	.014
30.0	.008	.008	.008	.008	.008	.007	.007	.007	.007	.007	.007	.008	.008
40.0	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.006	.006
50.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004

TABLE A-3B. AEROSOL EXTINCTION COEFFICIENT (B_{AER})
URBAN MODEL

VSBY (km)	RELATIVE HUMIDITY										>99			
	<=50	55	60	65	70	75	80	85	90	92	94	96	98	
1.5	.232	.232	.232	.233	.233	.234	.234	.240	.249	.254	.261	.271	.288	.307
2.0	.175	.175	.176	.176	.176	.176	.176	.177	.181	.188	.191	.196	.203	.216
2.5	.141	.141	.141	.141	.141	.142	.142	.145	.150	.153	.157	.163	.173	.184
3.0	.117	.118	.118	.118	.118	.118	.118	.118	.121	.125	.128	.131	.136	.144
4.0	.088	.088	.088	.089	.089	.089	.089	.091	.094	.096	.098	.102	.106	.115
5.0	.071	.071	.071	.071	.071	.071	.071	.073	.075	.077	.078	.081	.086	.092
6.0	.059	.059	.059	.059	.059	.059	.059	.060	.063	.064	.065	.067	.072	.076
7.0	.050	.050	.050	.050	.051	.051	.051	.052	.053	.054	.056	.058	.061	.065
8.0	.044	.044	.044	.044	.044	.044	.044	.044	.045	.047	.048	.049	.050	.053
9.0	.039	.039	.039	.039	.039	.039	.039	.039	.040	.041	.042	.043	.045	.047
10.0	.035	.035	.035	.035	.035	.035	.035	.036	.036	.037	.038	.039	.040	.042
15.0	.020	.020	.020	.020	.020	.020	.020	.020	.020	.021	.022	.023	.024	.026
20.0	.012	.012	.012	.012	.012	.012	.012	.012	.013	.013	.013	.014	.015	.016
30.0	.007	.007	.007	.007	.007	.007	.007	.007	.007	.007	.007	.008	.008	.009
40.0	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.006	.006	.006
50.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.005	.005

TABLE A-3C. AEROSOL EXTINCTION COEFFICIENT (B_{AER})
RURAL MODEL

<u>VISIBILITY (KM)</u>	<u>EXTINCTION COEFFICIENT</u>
.1	9.999
.2	5.319
.5	2.264
1.0	1.164

TABLE A-3D. AEROSOL EXTINCTION COEFFICIENT (B_{AER})
FOG MODEL

DEN POINT	TEMPERATURE (C)								
	-30.	-15.	0.	5.	10.	15.	20.	22.	24.
-30.	.029	.027	.026	.025	.025	.024	.024	.023	.023
-29.	.028	.028	.026	.026	.025	.025	.024	.024	.023
-28.	.028	.027	.027	.026	.026	.025	.025	.024	.024
-27.	.029	.029	.026	.027	.026	.026	.026	.025	.025
-26.	.029	.029	.028	.027	.027	.027	.026	.026	.026
-25.	.030	.030	.029	.028	.028	.028	.027	.027	.027
-24.	.031	.030	.030	.029	.029	.028	.028	.027	.027
-23.	.032	.032	.030	.030	.030	.029	.029	.028	.028
-22.	.033	.033	.031	.031	.030	.030	.030	.029	.029
-21.	.034	.034	.032	.032	.031	.031	.030	.030	.030
-20.	.035	.033	.032	.032	.032	.031	.031	.031	.031
-19.	.036	.034	.033	.033	.032	.032	.032	.032	.032
-18.	.038	.035	.034	.034	.033	.033	.033	.033	.033
-17.	.039	.036	.036	.035	.035	.034	.034	.034	.034
-16.	.041	.038	.037	.036	.036	.035	.035	.035	.035
-15.	.043	.039	.038	.038	.037	.037	.037	.037	.037
-14.	.041	.040	.039	.038	.038	.037	.037	.037	.037
-13.	.042	.041	.040	.040	.039	.039	.038	.038	.038
-12.	.044	.043	.042	.041	.040	.040	.040	.039	.039
-11.	.047	.045	.044	.043	.042	.042	.041	.041	.040
-10.	.049	.047	.046	.045	.044	.043	.043	.042	.042
-9.	.051	.050	.048	.047	.045	.045	.044	.043	.043
-8.	.054	.052	.050	.049	.048	.047	.046	.046	.044
-7.	.057	.055	.053	.051	.050	.049	.048	.047	.046
-6.	.060	.058	.056	.054	.052	.051	.050	.049	.048
-5.	.064	.061	.059	.057	.055	.054	.053	.052	.050
-4.	.066	.065	.062	.060	.058	.057	.056	.055	.052
-3.	.072	.069	.066	.063	.061	.060	.059	.057	.054
-2.	.077	.073	.070	.067	.065	.064	.063	.062	.058
-1.	.082	.078	.075	.075	.071	.069	.067	.066	.063

TABLE A-4. MOLECULAR EXTINCTION COEFFICIENT (B_{MOL})

TABLE A-4. MOLECULAR EXTINCTION COEFFICIENT (B_{MOL})

DEW POINT	TEMPERATURE (C)									
	-30.	-25.	-20.	-15.	-10.	-5.	0.	5.	10.	20.
0.	.084	.089	.090	.076	.073	.072	.071	.069	.068	.066
1.	.085	.089	.081	.078	.076	.075	.074	.073	.072	.071
2.	.096	.091	.087	.083	.081	.080	.079	.077	.076	.075
3.	.103	.094	.093	.084	.087	.085	.084	.082	.081	.080
4.	.105	.095	.099	.095	.093	.091	.089	.088	.086	.085
5.	.110	.110	.112	.107	.101	.099	.097	.096	.092	.091
6.	.119	.121	.115	.109	.107	.104	.102	.101	.099	.097
7.	.139	.123	.123	.117	.114	.112	.110	.108	.106	.104
8.	.151	.143	.140	.132	.125	.123	.120	.118	.115	.113
9.	.163	.154	.154	.145	.142	.140	.138	.135	.133	.130
10.	.170	.170	.170	.164	.174	.169	.165	.161	.157	.153
11.	.184	.184	.184	.180	.190	.185	.180	.175	.171	.166
12.	.190	.190	.190	.190	.190	.190	.190	.190	.190	.190
13.	.207	.207	.207	.207	.207	.207	.201	.196	.191	.186
14.	.222	.222	.222	.222	.222	.222	.220	.214	.208	.203
15.	.242	.242	.242	.242	.242	.242	.220	.214	.208	.203
16.	.246	.246	.246	.246	.246	.246	.227	.233	.227	.221
17.	.261	.261	.261	.261	.261	.261	.247	.254	.240	.234
18.	.293	.284	.293	.293	.293	.293	.276	.269	.261	.254
19.	.310	.310	.310	.310	.310	.310	.292	.284	.276	.269
20.	.446	.446	.446	.446	.446	.446	.431	.431	.431	.431
21.	.486	.486	.486	.486	.486	.486	.398	.398	.398	.398
22.	.531	.531	.531	.531	.531	.531	.495	.495	.495	.495
23.	.561	.561	.561	.561	.561	.561	.540	.540	.540	.540
24.	.616	.616	.616	.616	.616	.616	.592	.592	.592	.592
25.	.651	.651	.651	.651	.651	.651	.624	.624	.624	.624
26.	.722	.722	.722	.722	.722	.722	.699	.699	.699	.699
27.	.767	.767	.767	.767	.767	.767	.729	.729	.729	.729
28.	.816	.816	.816	.816	.816	.816	.665	.665	.665	.665
29.	.867	.867	.867	.867	.867	.867	.773	.773	.773	.773
30.										
31.										
32.										

		EXT COEF	TRANS								
.01	.96	.23	.40	.45	.17	.67	.07	.89	.03	1.11	.01
.02	.92	.24	.38	.46	.16	.68	.07	.90	.03	1.12	.01
.03	.89	.25	.37	.47	.15	.69	.06	.91	.03	1.13	.01
.04	.85	.26	.35	.48	.15	.70	.06	.92	.03	1.14	.01
.05	.82	.27	.34	.49	.14	.71	.06	.93	.02	1.15	.01
.06	.79	.28	.33	.50	.14	.72	.06	.94	.02	1.16	.01
.07	.76	.29	.31	.51	.13	.73	.05	.95	.02	1.17	.01
.08	.73	.30	.30	.52	.12	.74	.05	.96	.02	1.18	.01
.09	.70	.31	.29	.53	.12	.75	.05	.97	.02	1.19	.01
.10	.67	.32	.28	.54	.12	.76	.05	.98	.02	1.20	.01
.11	.64	.33	.27	.55	.11	.77	.05	.99	.02	1.21	.01
.12	.62	.34	.26	.56	.11	.78	.04	1.00	.02	1.22	.01
.13	.59	.35	.25	.57	.10	.79	.04	1.01	.02	1.23	.01
.14	.57	.36	.24	.58	.10	.80	.04	1.02	.02	1.24	.01
.15	.55	.37	.23	.59	.09	.81	.04	1.03	.02	1.25	.01
.16	.53	.38	.22	.60	.09	.82	.04	1.04	.02	1.26	.01
.17	.51	.39	.21	.61	.09	.83	.04	1.05	.01	1.27	.01
.18	.49	.40	.20	.62	.08	.84	.03	1.06	.01	1.28	.01
.19	.47	.41	.19	.63	.08	.85	.03	1.07	.01	1.29	.01
.20	.45	.42	.18	.64	.08	.86	.03	1.08	.01	1.30	.01
.21	.43	.43	.18	.65	.07	.87	.03	1.09	.01	1.31	.01
.22	.41	.44	.17	.66	.07	.88	.03	1.10	.01	1.32	.01
										>1.33	.00

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